ENVIROLOGIX
QUICKTOX KIT FOR AFLATOXIN BULK GRAIN

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GENERAL INFORMATION

The QuickTox Kit for Aflatoxin Bulk Grain test kit uses lateral flow test strip technology that provides qualitative Aflatoxin results at a 20 ppb detection threshold.

The instructions presented in this document cover only the procedure for performing the analytical test for official inspections. For questions regarding this procedure, contact Dr. Ajit Ghosh of the Technology and Science Division by phone at 816-891-0417 or email at Ajit.K.Ghosh@usda.gov.

Refer to the current policies and/or instructions issued by the Policies, Procedures, and Market Analysis Branch (PPMAB) of the Field Management Division for information on use of this test kit in official inspections including sampling, general sample preparation (e.g., grinding and dividing), reporting and certification of test results, laboratory safety, and hazardous waste management. For questions regarding these policies and/or instructions, contact Patrick McCluskey of PPMAB by phone at 816-659-8403 or email at Patrick.J.McCluskey@udsa.gov.

Approved Test Kit Information	
Test Kit Vendor:	*EnviroLogix Inc. (207) 797-0300*
Test Kit Name:	QuickTox Kit for Aflatoxin Bulk Grain
Product Number:	10539
Effective Date of Instructions:	07/15/2015
Instructions Revision Number:	0
Type of Service:	Qualitative
Detection Threshold	20 ppb
Supplemental Analysis:	N/A
Approved Commodities:	Corn
Extraction Method:	Shake vigorously 50-gram sample with 100 milliliters (mL) 50% ethanol/50% deionized or distilled water (v/v) for 1 minute on a mechanical shaker (300 rpm) or by hand with similar shaking action.
Test Format:	Lateral Flow Strip
Detection Method:	Visual

PREPARATION OF TESTING MATERIALS

a. Preparation of Extraction Solvent: 50%ethanol/50% water (v/v)

(1) For 1000 mL, using a graduated cylinder, measure 500 mL of ethanol (reagent grade or better) and place it into a suitable container with cap**.**

(2) Add 500 mL deionized or distilled water to the ethanol. Cap tightly and shake until completely mixed.

(3) Label the container stating the mixture (50 percent ethanol: 50 percent water), date of preparation and initials of technician that prepared the solution.

(4) Store this solution at room temperature in a tightly closed container.

(5) To prepare smaller or larger amounts of solution use the ratio of 1 parts ethanol to 1 part of deionized or distilled water.

Note: 50%ethanol/50% water (v/v) is available as an accessory, catalog no. ACC-E26902-1

EXTRACTION PROCEDURES AND SAMPLE PREPARATION

a. Extraction and Dilution Procedure for Corn

(1) Weigh out 50 grams (± 0.2) of ground sample into a sample cup with lid.

(2) Add 100 mL of extraction solvent and secure the lid.

(3) Vigorously shake for 1 minute on a shaker platform (300 rpm) or by hand with similar shaking action.

(4) The sample will immediately (in 5 to 10 minutes) begin to separate into 2 layers. The top (yellowish) layer containing the aflatoxin residues will be used in testing.

(5) Using the fixed volume pipette provided, place 150 microliters (µL) of tap water into a reaction vial.

(6) Using the same fixed volume pipette, add 150 µL of the extract (particulates free) from top (yellowish) layer into the reaction vial containing water.

(7) Mix water and sample extract thoroughly by stirring with the tip of the fixed volume pipette.

TEST PROCEDURES

a. Analysis Procedure

(1) Allow refrigerated canisters to come to room temperature before opening. Remove the QuickTox Strips to be used. Avoid bending the strips. Reseal the canister immediately

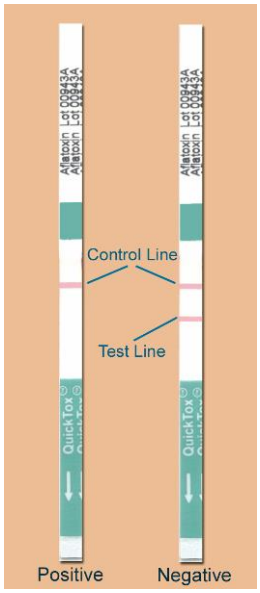
(2) Place the strip into the reaction vial containing the diluted sample extract. The arrow tape on the end of the strip should point into the reaction vial.

(3) The sample extract will travel up the strip (flow may not be visible immediately—this is expected and normal). Reaction vials will stand on their own or may be inserted into the cardboard rack provided.

(4) Allow the strip to develop for 5 minutes before making final assay interpretations. Negative sample results may become obvious much more quickly (2-3 minutes).

(5) To retain the strip, cut off and discard the bottom section of the strip covered by the arrow tape.

b. Interpretation of Results



a. Development of a Control Line within 5 minutes indicates that the strip has functioned properly. Any strip that does not develop a Control Line should be discarded. A second preparation of the extract (using a fresh dilution) should be made and tested using another strip.

b. **Negative Results** – A sample containing aflatoxin residues of less than 20 ppb will develop **2 distinct lines** in the test area. A negative test result can be interpreted as soon as a Test Line develops, generally within 2-3 minutes.

c. **Positive Results –** The QuickTox Kit for Aflatoxin is designed to screen for aflatoxin at levels of 20 ppb or higher in corn grain. A sample containing aflatoxin residues of 20 ppb or higher will develop **1 distinct line**, the Control Line. **The absence of a Test Line should be interpreted as positive for aflatoxin residues**. Allow the strip to develop for the full 5 minutes before concluding that the sample has tested positive for aflatoxin

SUPPLEMENTAL ANALYSIS

N/A

REPORTING AND CERTIFYING TEST RESULTS

Refer to the current instructions issued by the Policies, Procedures, and Market Analysis Branch of the Field Management Division for reporting and certification of test results. For questions regarding these instructions, contact Patrick McCluskey (816-659-8403 or Patrick.J.McCluskey@usda.gov).

STORAGE CONDITIONS AND PRECAUTIONS

a. Storage Conditions

(1) This QuickTox Kit should be stored refrigerated at 2-8°C (36-46°F) when not in use. Note the shelf life on the kit box. The kit may be used in field applications; however, prolonged exposure to high temperatures may adversely affect the test results. Do not open the desiccated canister until ready to use the strips.

(2) QuickTox strips must be stored inside their original desiccated canister.

b. Precautions

(1) Protect all components from hot or cold extremes of temperature when not in use. Do not leave in direct sunlight or in vehicle.
(2) **IMPORTANT:** Ethanol are flammable and toxic. Avoid inhaling vapors or contact with the skin, eyes, or clothing. Wear personal protective equipment including safety glasses, nitrile gloves (**not latex**), a vapor mask and a lab coat when handling. Keep containers tightly closed and away from heat, sparks and open flame. Observe any applicable regulations when disposing of samples and kit reagents.
(3) All components and reagents must be at room temperature before the assay is run.
(4) Avoid drawing up particulates when diluting the sample extract.
(5) After diluting the sample, the final volume in the reaction vial should be 300 µL. Do not **reuse** diluted samples. Use a new fixed volume pipette and reaction vial for each sample.

EQUIPMENT AND SUPPLIES

a. Materials Supplied with the Kit

(1) 50 QuickTox Strips packed in a moisture-resistant canister
(2) 50 fixed volume transfer pipettes
(3) 50 reaction vials

b. Materials Required but not Provided with Kit

(1) Balance
(2) Orbital/rotary shaker if mechanical shaking is used.
(3) Plastic sample cups with lids* catalog no. ACC-012-50
(4) Solvent (70% methanol or 50% ethanol)*
(5) 20 mesh screen
(6) Graduated cylinder*
(7) Tap water
(8) Timer
(9) Distilled or de-ionized water if 70% methanol or 50% ethanol is prepared rather than purchased.

REVISION HISTORY

Revision 0 (07/15/2015)